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**Berger et al.**

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(54) **NOTIFYING A USER OF AN AVAILABLE MEDIA OBJECT**

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(51) **Int. Cl.**
***G08B 1/08*** (2006.01)

(52) **U.S. Cl.**
USPC ..... **340/539.11**; 340/539.1; 340/540; 340/573.1; 455/406; 455/414.2; 455/566

(58) **Field of Classification Search**
USPC ..... 340/540, 539.1, 539.11, 573.1, 825.69, 340/825.72; 455/406, 414.2, 566, 566.1, 455/564, 565, 456.1, 456.2, 456.3; 709/201, 231
See application file for complete search history.

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*Primary Examiner* — Hung T. Nguyen
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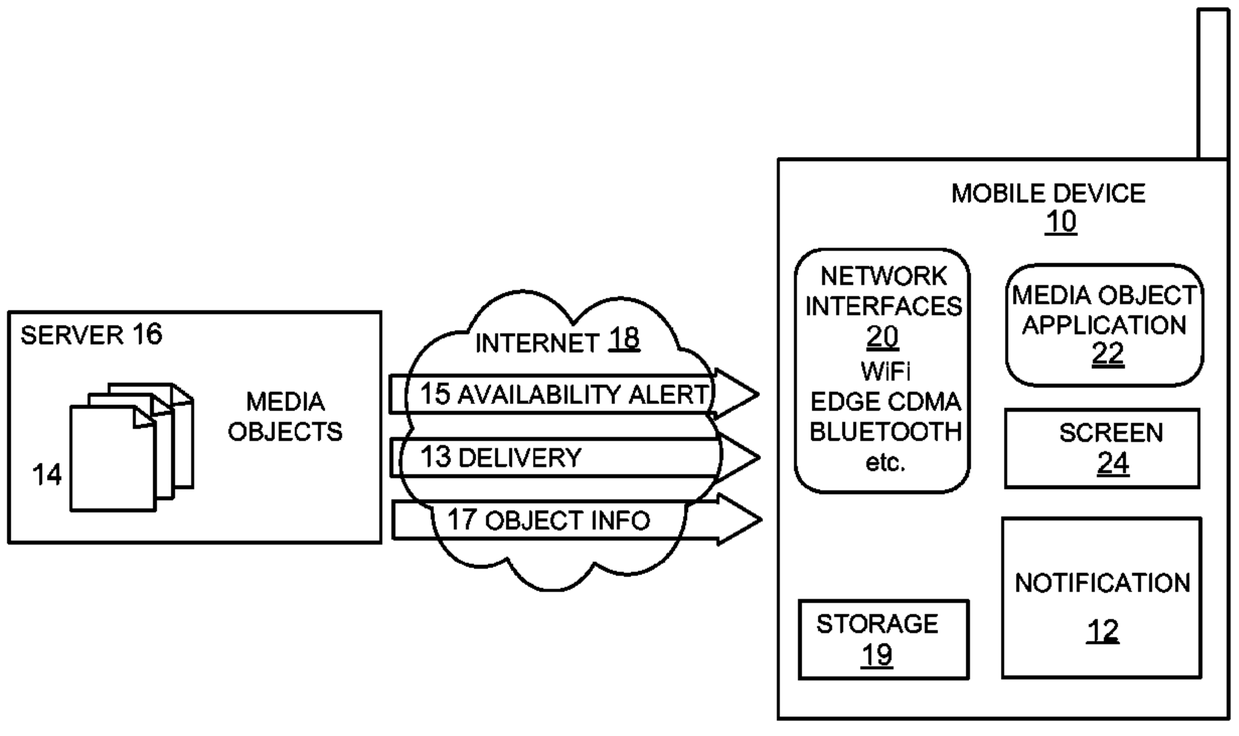
(57) **ABSTRACT**

Among other features, notification is presented on a mobile device to a user to advise the user of the availability of a media object that (a) has been received from a server and stored on the mobile device without the user having been aware of the receipt or storage, or (b) has newly become available for streaming from the server to the mobile device.

**31 Claims, 8 Drawing Sheets**



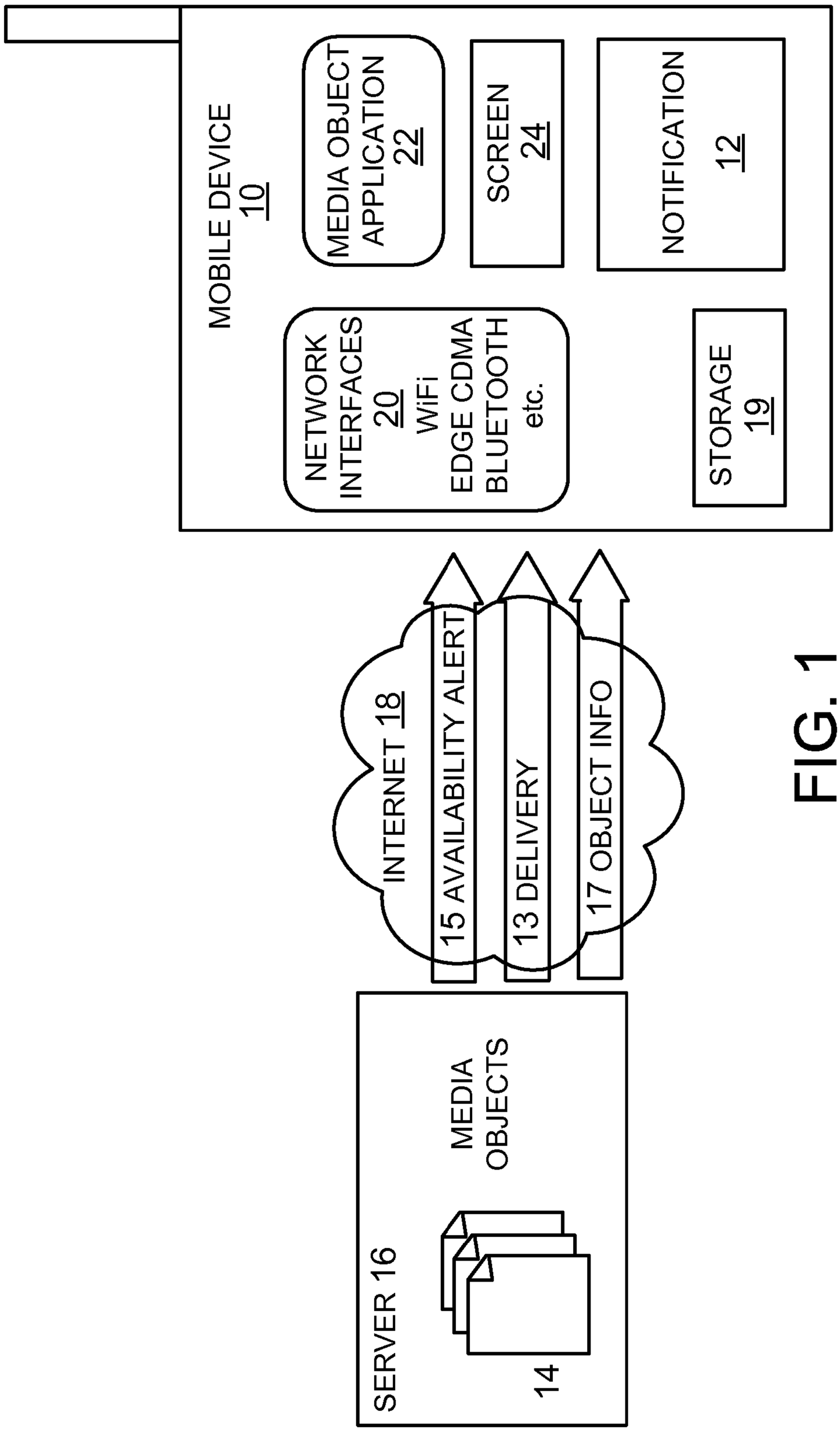

MOBILE DEVICE 10
MEDIA OBJECT APPLICATION 22
SCREEN 24
NOTIFICATION 12
NETWORK INTERFACES 20
WiFi
EDGE CDMA
BLUETOOTH
etc.
STORAGE 19
INTERNET 18
15 AVAILABILITY ALERT
13 DELIVERY
17 OBJECT INFO
SERVER 16
MEDIA OBJECTS
14

FIG. 1

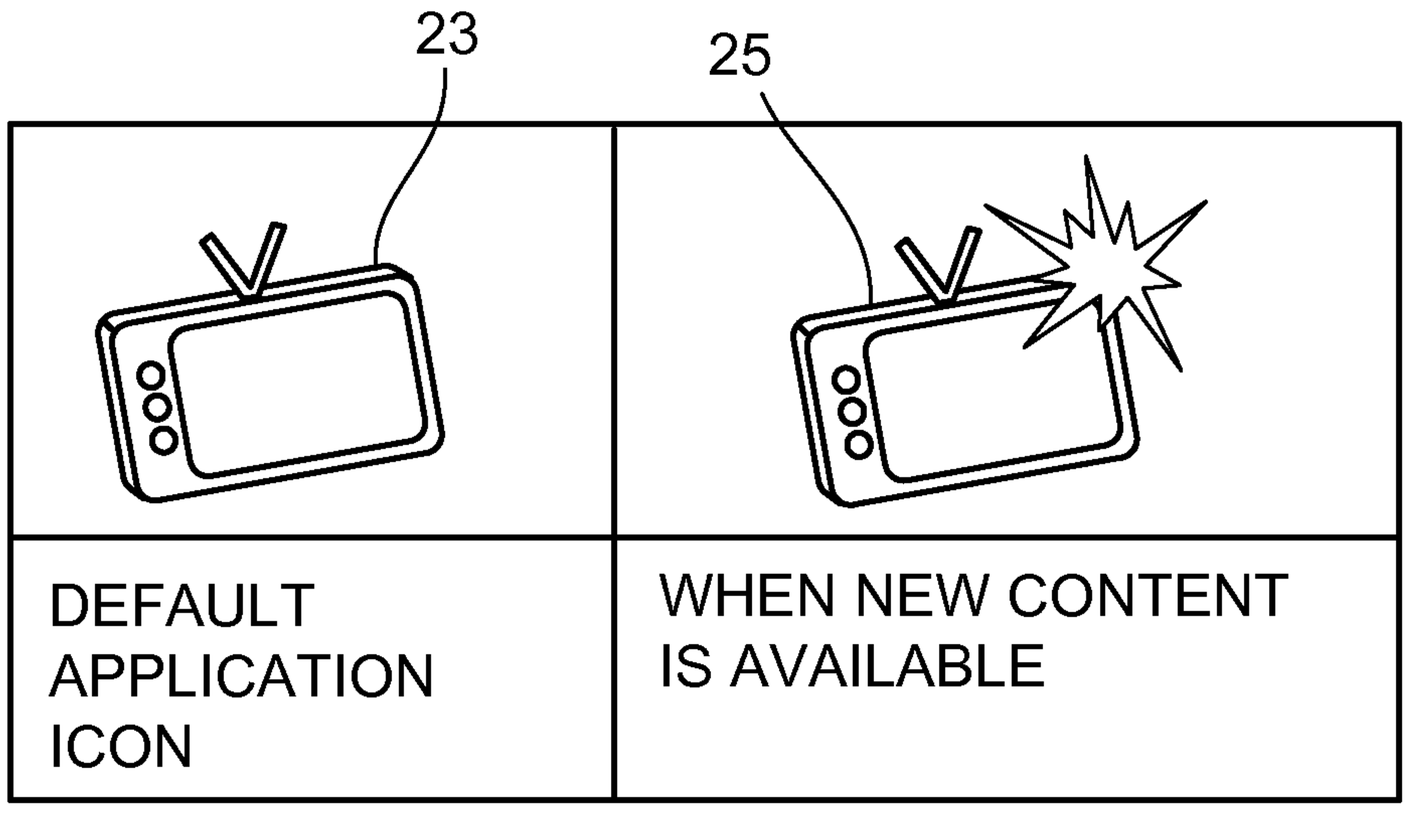

23
25
DEFAULT APPLICATION ICON
WHEN NEW CONTENT IS AVAILABLE

FIG. 1A

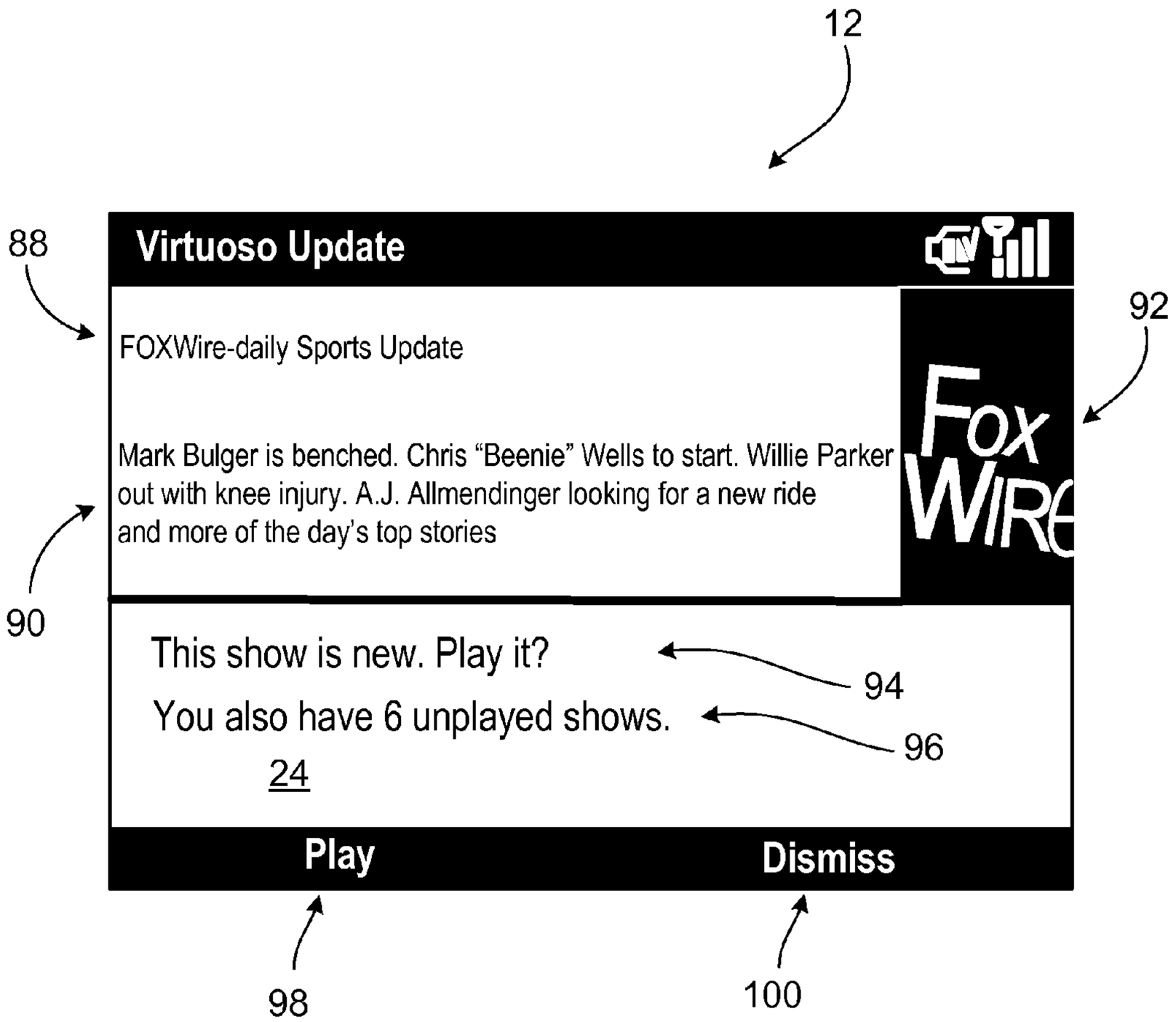

12
88
Virtuoso Update
92
FOXWire-daily Sports Update
Mark Bulger is benched. Chris "Beenie" Wells to start. Willie Parker out with knee injury. A.J. Allmendinger looking for a new ride and more of the day's top stories
90
This show is new. Play it?
94
You also have 6 unplayed shows.
96
24
Play
Dismiss
98
100

FIG. 1B

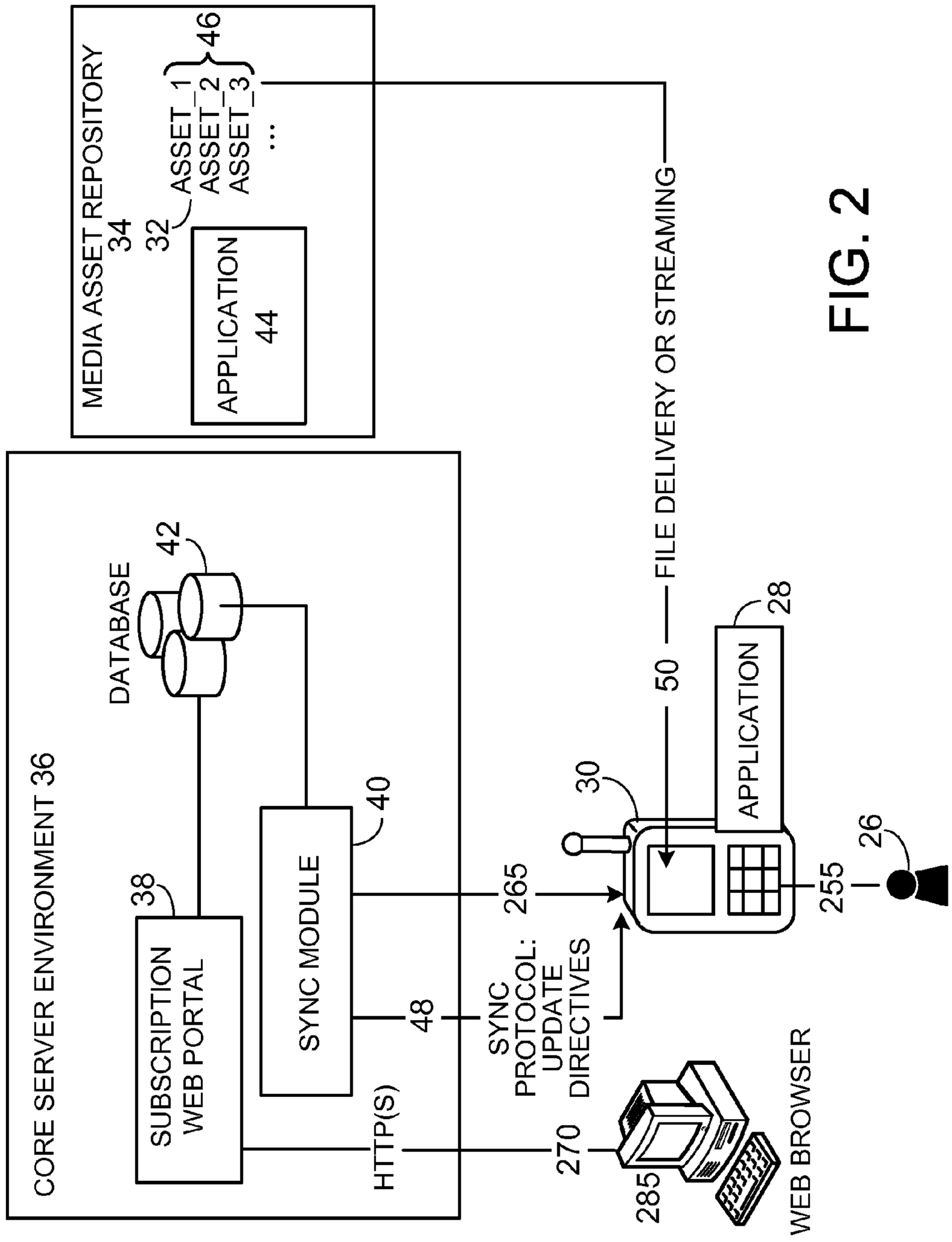

MEDIA ASSET REPOSITORY
34
32
APPLICATION
44
ASSET_1
ASSET_2
ASSET_3
46
FILE DELIVERY OR STREAMING
50
CORE SERVER ENVIRONMENT 36
DATABASE
42
SUBSCRIPTION WEB PORTAL
38
SYNC MODULE
40
HTTP(S)
48
SYNC PROTOCOL: UPDATE DIRECTIVES
270
265
30
APPLICATION
28
255
26
285
WEB BROWSER

FIG. 2

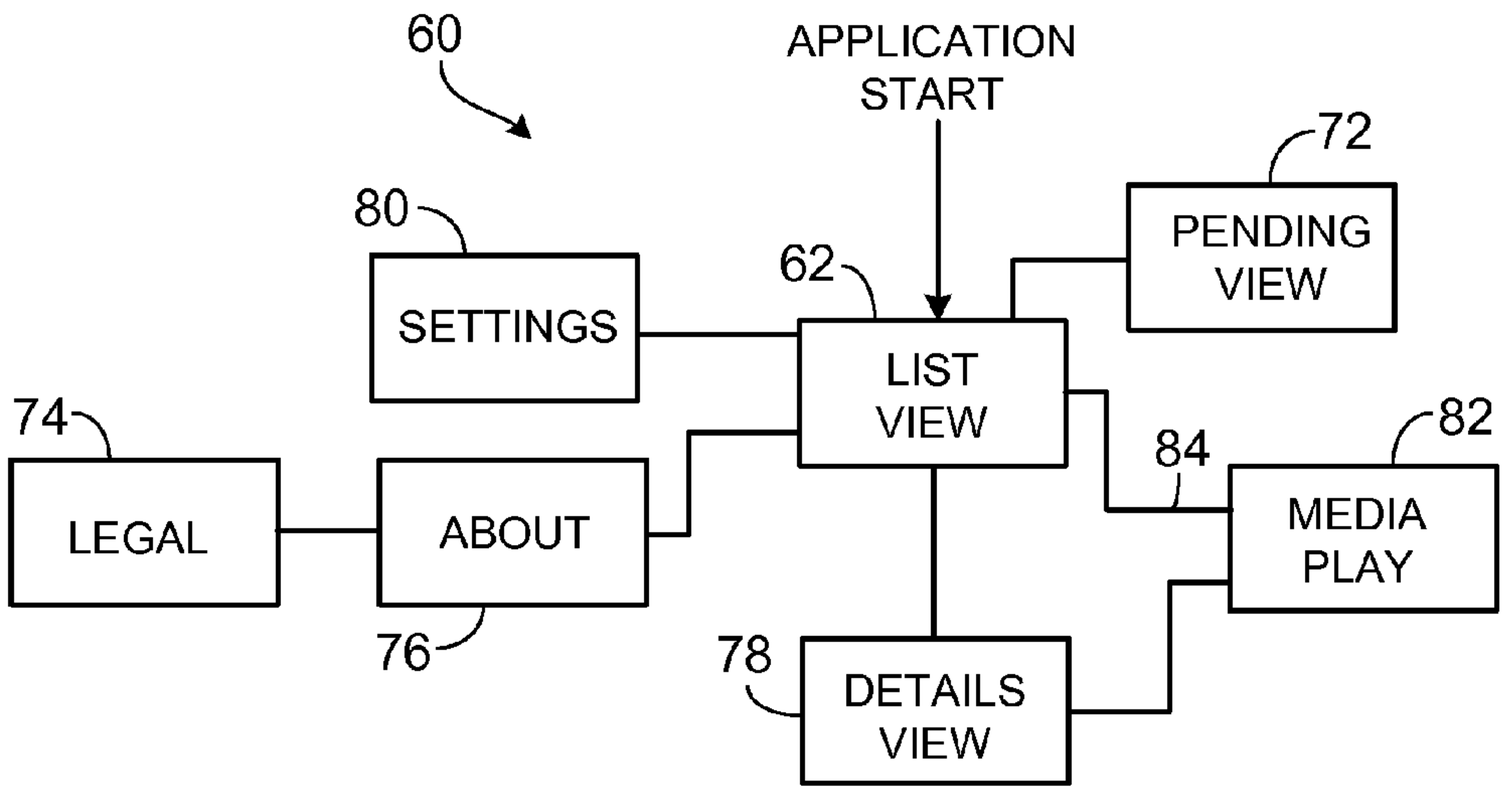

60
APPLICATION START
72
PENDING VIEW
80
SETTINGS
62
LIST VIEW
74
LEGAL
ABOUT
84
82
MEDIA PLAY
76
78
DETAILS VIEW

FIG. 3

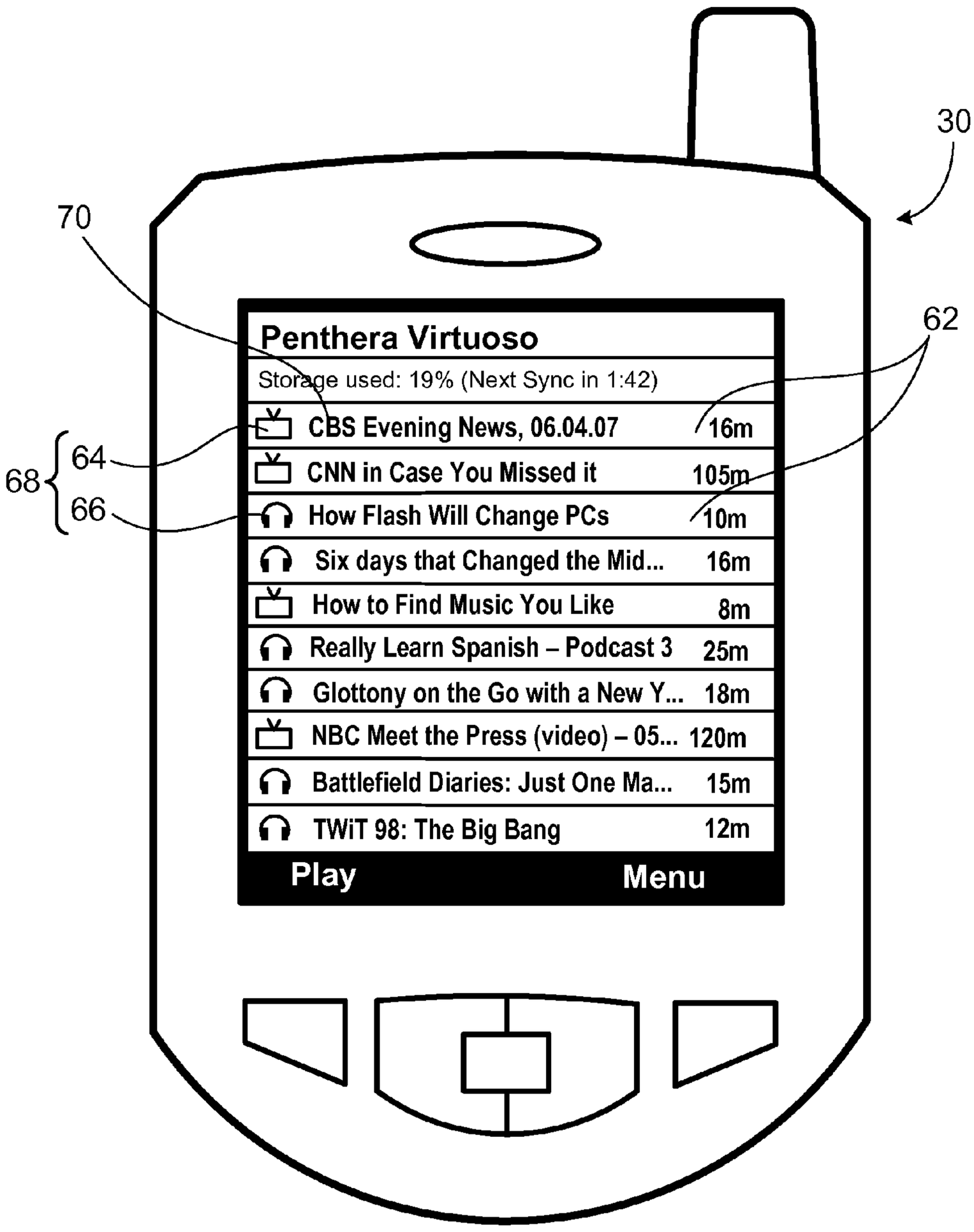

30
70
62
68
64
66
Penthera Virtuoso
Storage used: 19% (Next Sync in 1:42)
CBS Evening News, 06.04.07 16m
CNN in Case You Missed it 105m
How Flash Will Change PCs 10m
Six days that Changed the Mid... 16m
How to Find Music You Like 8m
Really Learn Spanish – Podcast 3 25m
Glottony on the Go with a New Y... 18m
NBC Meet the Press (video) – 05... 120m
Battlefield Diaries: Just One Ma... 15m
TWiT 98: The Big Bang 12m
Play
Menu

FIG. 4

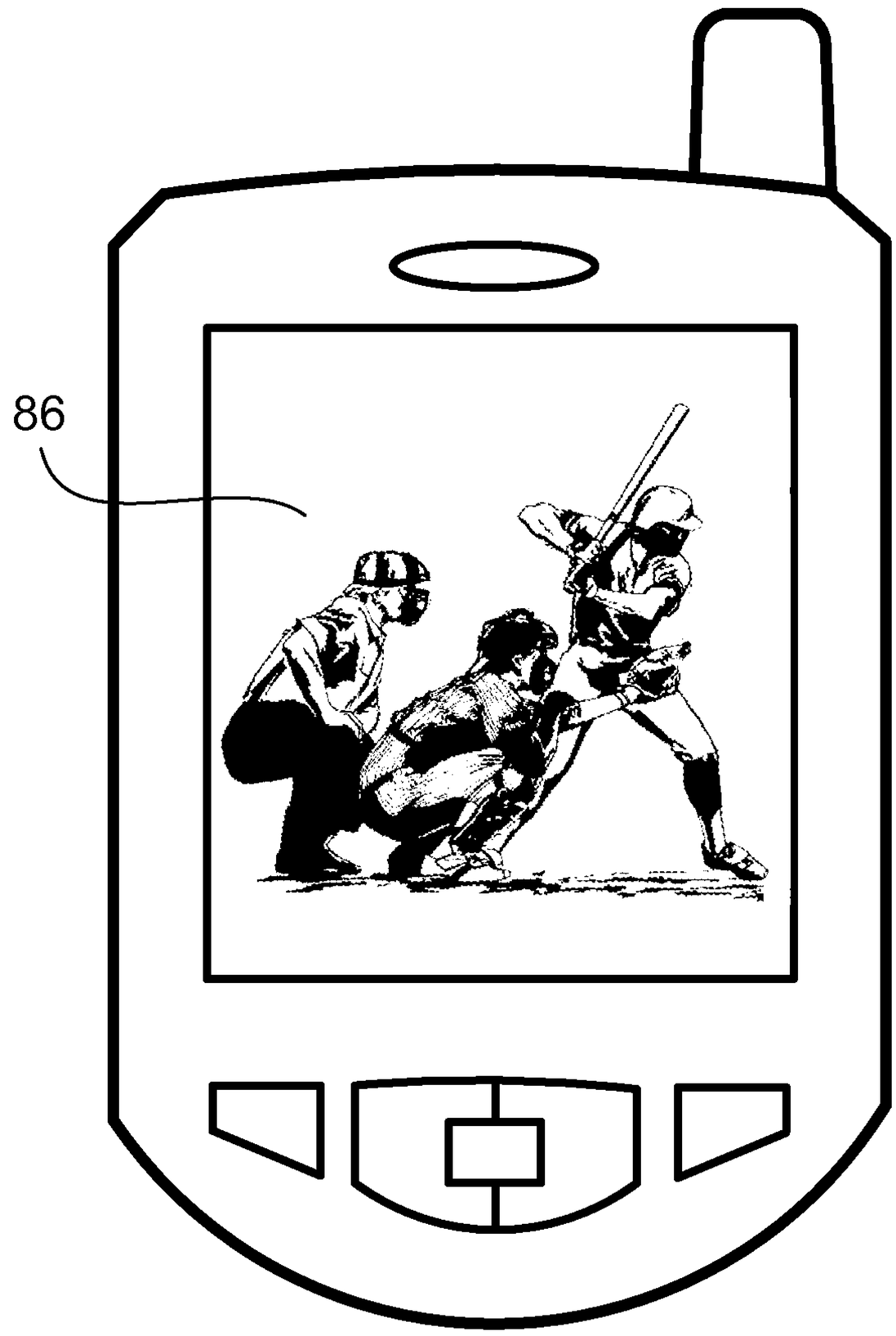



FIG. 5

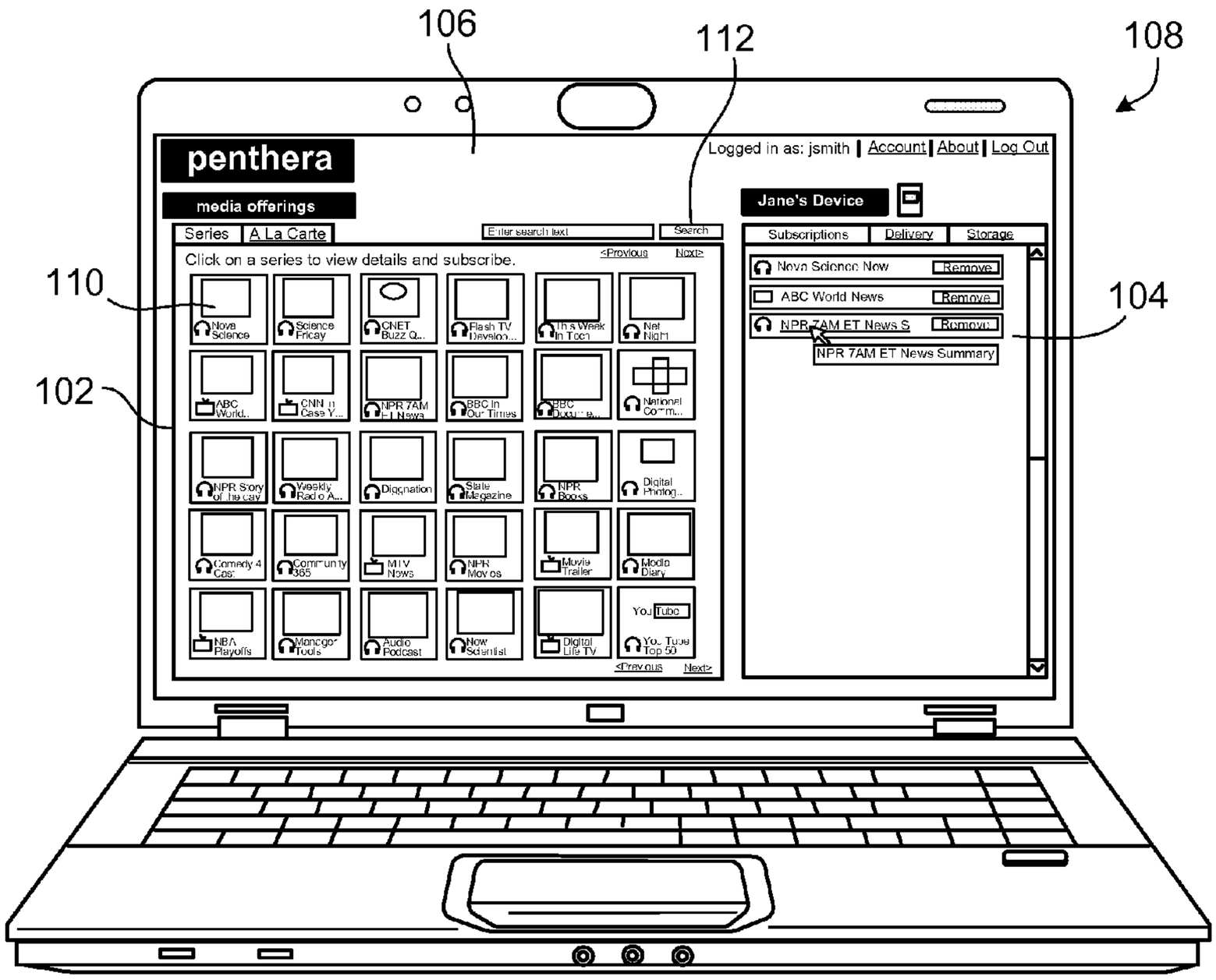

106
112
108
110
102
104
penthera
media offerings
Logged in as: jsmith | Account | About | Log Out
Jane's Device
Series
A La Carte
Search
Click on a series to view details and subscribe.
<Previous
Next>
Subscriptions
Delivery
Storage
Nova Science Now
Remove
ABC World News
Remove
NPR 7AM ET News S
Remove
NPR 7AM ET News Summary
Nova Science
Science Friday
CNET Buzz O...
Flash TV Develop...
This Week In Tech
Net Night
ABC World...
CNN in Case Y...
NPR 7AM ET News
BBC In Our Times
National Comm...
NPR Story of the Day
Weekly Radio A...
Digg nation
State Magazine
NPR Books
Digital Photog...
Comedy 4 Cas:
Community 365
MTV News
NPR Movies
Movie Trailer
Media Diary
NBA Playoffs
Manager Tools
Audio Podcast
New Scientist
Digital Life TV
YouTube
YouTube Top 50
<Previous
Next>

FIG. 6

# NOTIFYING A USER OF AN AVAILABLE MEDIA OBJECT

This application is entitled to the benefit of the priority of U.S. provisional application Ser. No. 61/111,502, filed Nov. 5, 2008, and incorporated here by reference.

This description relates to notifying a user of an available media object.

## BACKGROUND

A media object (such as a song, image, video, or other multimedia object), stored on a server and optimized for later playing on a mobile device can be delivered to the mobile device proactively or reactively. In proactive delivery, the media object is delivered to and stored on the mobile device ahead of when the user attempts to access it. In reactive delivery, the media object is held on the server until it is requested by user, and then streamed to the mobile device and played immediately.

## SUMMARY

In general, in an aspect, at a mobile device, (a) a media object to be played to a user of a mobile device is received from a server and stored on the mobile device, without requiring a user of the mobile device to be aware of the receipt or storage, or (b) an alert that a media object has become available for streaming delivery to and playing to the user at the mobile device is received at the mobile device, or both (a) and (b). A notification is presented on the mobile device to the user indicating that the media object is available to be played.

Implementations may include one or more of the following features. The notification is presented modally. The notification is displayed. The notification includes vibrating the mobile device or playing a sound. The notification includes interactive controls that can be invoked by the user. The notification includes information that describes the media object. The user can preselect a form of the notification to be presented. The user selects a feature of the notification to be presented. The user is enabled to select types of the media object for which the notification is to be presented. The notification indicates that the media object is not to be played until a time later than when it is first available. The notification indicates that the media object is not to be played after an expiration time. The notification incorporates other notifications related to other media objects at the same time. The receiving of the media object at the mobile device occurs automatically without an action by the user. The user can select from a displayed list of available media objects a media object to be played. The notification includes presenting advertising to the user.

In general, in an aspect, notification is presented on a mobile device to a user to advise the user of the availability of a media object that (a) has been received from a server and stored on the mobile device without the user having been aware of the receipt or storage, or (b) has newly become available for streaming from the server to the mobile device.

These and other features and aspects, and combinations may also be expressed as methods, business methods, apparatus, systems, program products, databases, means for performing functions, and in other ways.

Other advantages and features will become apparent from the following description and from the claims.

## DESCRIPTION OF THE DRAWINGS

FIGS. **1** and **2** are block diagrams.

FIGS. **1**A, **1**B, **4**, **5**, and **6** are screen shots

FIG. **3** is a flow diagram. .



## DESCRIPTION OF THE INVENTION

Referring to FIG. **1**, a mobile device **10** can be arranged to present a notification **12** to a user when a media object **14** is available to be played. The media object may have become available for playing on the mobile device because a server **16** where it is stored has sent an availability alert **15** to tell the mobile device that the object is available to be streamed to the mobile device for playing reactively whenever the user asks for the media object. Or the media object may have become available for playing on the mobile device by having been proactively delivered **13** to the mobile device and stored there until the user wants the media object to be played. Other delivery techniques could also be used.

In our use of the term mobile device, we include (without limitation) personal digital assistants, cellular telephones, notebook computers, and any other device that is portable and can communicate through an available (typically wireless) communication channel. In our use of the term media object, we include (without limitation) music, images, videos, cartoons, advertisements, text documents, other multimedia objects, and any other object that can be presented to, played for, or performed for a user of the device using audio, video, display, or other technologies. In our use of the term play and the term present, we include (without limitation) performing, playing audibly or visually or both, displaying, or in any way presenting to a user's senses.

The notification **12** can be presented by the mobile device **10** in a wide variety of ways, and at a wide variety of times. For example, the notification can be presented audibly or visually or both, through a display screen **24**, speakers, earphones, vibration, or any combination of them. The notification can be generated at the mobile device for presentation to the user based on information **17** about the media object that is provided from the server **16** (for example, as part of or related to the availability alert) or from other sources. The notification can be generated at the server, delivered to the mobile device, and used by the mobile device as is (or with modification) in the presentation of the notification to the user. The notification can be presented to the user in any form and through any presentation medium, for example, by email or a text message, on screen, embedded in other objects being presented, or in other ways.

The notification **12** can be presented at a variety of times, and more than one time, either alone or in combination with other notifications related to other media objects. The notification can be presented immediately or promptly when the availability alert is received or when the object is proactively delivered to the mobile device. Prompt presentation is especially useful for a time-sensitive media object **14** such as a breaking news program or a financial market update. In some cases, the notifications can be delayed and presented at later times, either at regular times specified by the user, or at times determined by the system. Notifications can be delayed until several notifications are ready for presentation. The availability alert or the proactively delivered object can contain or be accompanied by information about when the notification is to be presented, which may be at a later time. The mobile device could respect such information or ignore it or some combination of the two.

In some embodiments, the media objects **14** are locked by encryption and/or subjected to digital rights management (DRM) control prior to delivery to the mobile device. The DRM control can include not permitting the media object **14** to be played until after a certain amount of time has passed or

beginning at a specific time. The availability alert or the object information or the object itself can contain information about the time when the object is allowed to be played. DRM control can include setting a time after which playing of the object is no longer permitted. A notification can be generated when the expiration time is approaching or imminent. DRM control can also be used to control the circumstances under which (or conditions required before) a media object can be presented. The notification can alert the user about such circumstances or conditions.

Among the advantages of the presentation of notifications is that, especially in the case of proactive delivery, the delivery can be accomplished in the background, without bothering the user, and the user will anticipate having the notification presented once the full media object has arrived. Also, suppliers of media objects can control the times and conditions under which the media is allowed to be played.

The presentation of the notification **12** can be modal, requiring the user to click through the notification before being allowed to use any other function of the mobile device, e.g., to play a media object. If more than one media object **14** is available at a given time or another media object becomes available when a notification **12** is already being presented, the notifications can be stacked up to allow or require the user to click through the stacked notifications before invoking any other functions.

In some examples, presentation of a new notification could cause an old one being to disappear, so that there is only one notification being presented at any given time. In some embodiments, the presented notification **12** automatically disappears from the screen **24**, for example, after a certain amount of time.

Among other advantages, the modal presentation can increase the chances that the user will review a notification including any advertisement or other promotional material that is part of the notification. The forced review may also increase the chances that the user will ask for presentation of the media object which may also contain advertising. This increased chance of review of the notification or presentation of the media object in turn may increase the willingness of advertisers to buy advertising and or the price that an advertiser will pay.

The notification **12** can take various forms. For example, the notification **12** can be visual, e.g., an icon on the screen **24**, or a visible change to an existing and standard icon (e.g., as shown in FIG. **1**A, a change from a default application icon **23** to another version of the icon **25**), an LED light that flashes (or remains on), a text message, or graphics, e.g., a logo corresponding to the new media, vibration of the device, or many others. The notification **12** can be audible and contain an audio, e.g., a chirp or other sound selectable by the user.

A wide variety and amount of information can be presented in the notification **12**. The information can include information about the media object **14**, e.g., the name, title, duration, source, time of availability, cost, advertising, and thumbnail images. The notification **12** can also a wide variety of buttons, links, and other devices that enable the user to take an action with respect to the notification. One action would be to ask for the presentation of the media object to begin immediately. Another could be to ask for the notification to be presented at a future time or times, or to never to be presented again. The user could be asked to confirm payment for the presentation of the media object.

In some implementations, the user can select types or sizes, or media of media objects, (e.g., news, sports, finance, and others; videos but not audio items; large files but not small ones), for which he/she would like to receive a notification. The user can also select the form, timing, and features of the notification **12**. For example, the user can toggle the audible feature on or off, specify which sound (and at what volume) to associate with the notification. In some embodiments, the sound can be suppressed when the mobile device is configured in "vibrate" or "silent" mode.

In the example shown in FIG. **1**B, a modal notification **12** about sports news includes a title **88** that identifies an overall source and category of the media object associated with the notification **12**, a text description **90** of the media object, and a logo **92** associated with the distributor or source of the news. The notification **12** also includes a text message **94** indicating that the sports news is new (for example, not previously available to this user on this device) and another text message **96** reminding the user of the number of un-played available media objects. The user can dismiss the notification **100** by clicking the dismiss button or request playing of the sports news by clicking on the play button.

Each media object **14** can be episodic, e.g., with new editions published at regular intervals, or be part of a sequence, e.g., a movie, or can be a stand alone item. A media object **14** may be time sensitive and require immediate playing (e.g., a stock ticker update). Other media objects may be relatively time insensitive, and a delay of hours in delivery and presentation can be acceptable (e.g., a movie trailer).

The delivery of the media objects **14** is facilitated by one or more network interfaces **20** (FIG. **1**) of the mobile device **10**, e.g., GPRS/EDGE, CDMA/EVDO, WiFi, Bluetooth, or a USB cable tethered to a host computer. Each of the network interfaces can take the advantage of a network resource for connecting to a communication network **18** (e.g., the Internet or other communication network). This connection may be the last hop for the media object to traverse in its travel from the server **16** to the mobile device **10**. The availability of network resources may vary from time to time as, for example, the mobile device moves in and out of network hotspots. For example, at one moment, WiFi and EDGE may be available; a few minutes later, only EDGE may be available.

The mobile device includes a media object application **22** that provides a wide variety of functions including communication with the server with respect to media objects, receipt of media objects in proactive or reactive modes, receipt and processing of availability alerts and object information from the server, assembly, generation, and presentation of notifications, interaction with the user in connection with presented notifications, reporting to the server which notifications have been presented, when, and with what result, management of user preferences regarding notifications, playing of media objects, management of DRM controls and decryption, tracking of the intended timing and frequency of presentation of notifications, and others.

The proactively delivered media objects **14** can be stored on a storage device **19** (e.g., a flash memory or magnetic disk drive) of the device as locally-stored media objects. The storage of a copy of a media object **14** on both the server **16** and the mobile device can be sync'ed.

In some implementations, proactive delivery of a media object that is to be locally stored happens automatically without user action, for example, without the user needed to press a key or attach a cable. The automatic proactive delivery can take place when the mobile device **10** is on, regardless of its state: plugged in and charging, engaged in other activities (e.g., a phone call), or in a power-save mode when the screen **24** is blank.

As shown in FIG. **2**, the media object application **28** on the mobile device **30** communicates with a core environment

running on the server **36** to receive each media object **32** (either by streaming or bulk downloading and storage on the mobile device) from a media asset repository **34** (which may or may not be located at the same place as the server) for playing by a user **26**. The core server environment **36** performs a wide variety of functions in connection with distributing the media objects and information for use in the presentation of notifications. These functions can include managing registration and subscription information for individual users as obtained through the web portal and a web browser on user computers, accumulating and providing availability alerts to the mobile device, accumulating and providing other information about media objects to the mobile device (including timing, restrictions, descriptions, and summaries), interacting with the mobile device and the user of the mobile device, managing DRM control of the use of media objects, and others.

Software components of the core server environment for performing these and other functions may include a web portal **38**, a sync module **40**, and a database **42**. The media asset repository **34** includes an object system **46** storing the media objects **32** for subsequent delivery to the mobile device **30**, and an application **44** managing the delivery of those objects **32** over, e.g., an IP network to the mobile device. An example of the application **44** is an Apache HTTP server as described on the Apache website at **http://httpd.apache.org/**. The application **28** can be installed by the mobile device manufacturer (OEM) before the mobile device **30** is sold to the user **26**, or by the user **26** after acquiring the device by, for example, downloading the application **28** through the Internet from the core server environment.

The application **28** is configured to automatically implement one or more of the following sequential applications (or a wide variety of other sequences):

1) Wait for a signal to indicate that sync'ing should occur. The signal may come from the mobile device **30**, from the server **36**, or from the user **26**.

2) Select an available IP channel (GPRS, WiFi, HSDPA, USB port) for the sync'ing.

3) Connect to the sync module **40** on the server **36** and transmit a query **48** that conforms to a defined communication protocol and asks for newly available media objects. The query may be to ask the server for information about newly available media items. In response to the query, the sync module may look in the database to identify newly available media objects. For instance, the sync module may search for newly available episodes for a user who has subscribed to Baseball Tonight.

4) Receive new media objects **50** from the media asset repository **34** and treat any locally stored version of the media object as expired.

5) Optionally, report (in conformity with the sync'ing protocol) the delivery event and the usage of the media object back to the server **36**.

The application **28** can perform the steps 1)-5) automatically without the need for the user's awareness of the steps being performed or the users action to intervene, activate, or adjust the performance of the steps. Newly available media objects can be delivered proactively hourly, daily, or weekly to the mobile device **30** (e.g., in the background) without the requirement for any user action. The media objects **46** in the media asset repository can also be made reactively available to the user **26**. The user can be notified when the proactive delivery is completed or the reactive delivery is available as described in FIG. **1** and take further actions based on the notification, for example, reviewing the media objects delivered or to be delivered, selecting media objects of interest, or playing the selected media objects.

The user can access the locally stored media objects manually. In some examples, an easy manual access is provided by a file system on the mobile device **30** that stores the proactively delivered media objects **32**. For example, when the mobile device **30** is a Windows Mobile device, the files can be stored in the "My Documents" folder. A notified user can access the stored media objects by, for example, use of existing tools on the mobile device (e.g., a "File Manager" application on a Windows Mobile device).

In some embodiments, whether or not notifications have been presented, the user can access the locally stored media object using the application **28** as shown in FIG. **3**. The application **60** provides the notified user **26** a list **62** of the locally-stored media objects and/or a list **72** of the remotely-stored media objects and allows the user to access the listed media objects easily, for example, by a simple click. The user-friendly access may be useful, for example, when a file system described above is not available (e.g., on a Java-based mobile device) or the manual access to the file system is non-intuitive.

The list **62** contains information, such as legal information **74** (e.g., copyrights that apply to the media objects), or other information **76** (e.g., content) about the available proactively delivered media objects. In the example shown in FIG. **4**, the list **62** displayed includes, for each media object, an icon **68** indicating a feature, e.g., the media object is visual as indicated by a visual icon **64** or the media object is audible as indicated by an audio icon **66**, of the media object **70**. The content of the media objects **70** can also be identified in text .The duration of each media object **70** may also be displayed.

Referring again to FIG. **3**, the user can also obtain a detailed view **78** of a particular media object listed on the list **62** when detailed information is requested by, for example, identifying the media object of interest. The pending list **72** of the application **60** provides to the user a view of the media objects that are scheduled for delivery and/or in transit but not yet fully downloaded. The list **72** can have a similar view or content to that of the list **62** exemplified in FIG. **4**.

In the example shown in FIG. **3**, the application **60** also provides a user-interactive interface **80** to allow the user to change some aspects or settings of the application **60**. For example, the user can select or change the format and/or content of the lists **62** and **72**, e.g., sequence of the listing, number of lists to display on each page, and others. The application **60** can include a built-in mechanism that plays or presents the content of the media object when the user selects one from the list. The application **60** can also interact with other applications **82** (e.g., web browser, media player, and others) within the application **28** (FIG. **2**) on the mobile device **30**, using application programming interface (API) calls **84**. When the user selects a media object of interest from the list **62** (or from the file system using a native file browser), an appropriate application external to the application **60** is launched to render the locally stored or remotely stored media, for example, baseball live show **86** of FIG. **5**.

Referring to FIG. **6**, the application **60** of FIG. **3** can also be presented using user-friendly application icons **102** and **104** on a user interface **106** of a mobile device **108** (particularly when the user interface **106** is sufficiently large, such as a screen of computer) to the user so that the user can easily use the application. For example, the media objects from different sources are categorized and each category **110** is listed graphically with more description than in the sample list **62** of

FIG. **4**. The application **60** also provides a search function **112** on the user interface **106** to facilitate the user selection of the media objects of interest.

Other implementations are also within the scope of the following claims.

What is claimed is:

**1**. A method comprising:

at a mobile device, receiving at successive times from a server and storing on the mobile device, without requiring a user of the mobile device to be aware of the receipt or storage, media objects for playing to the user on the mobile device,

for each of at least some of the media objects, when the media object has been received and stored, presenting a notification on the mobile device indicating that the media object is available to be played, the notification being distinct from the media object, the notification being presented modally to the user, the notification being presented without necessarily presenting the media object at the time of the notification, and

enabling the user to cause the playing of the media object at a time different from the time of presentation of the notification.

**2**. The method of claim **1** in which presenting the notification includes displaying the notification.

**3**. The method of claim **1** in which presenting the notification includes vibrating the mobile device or playing a sound.

**4**. The method of claim **1** in which the notification includes interactive controls that can be invoked by the user.

**5**. The method of claim **1** in which the notification includes information that describes the media object.

**6**. The method of claim **1** including enabling the user to preselect a form of the notification to be presented.

**7**. The method of claim **1** including enabling the user to select a feature of the notification to be presented.

**8**. The method of claim **1** including enabling the user to select types of the media object for which the notification is presented.

**9**. The method of claim **1** in which presenting the notification includes indicating that the media object is not to be played until a time later than when it is first available.

**10**. The method of claim **1** in which presenting the notification includes indicating that the media object is not to be played after the expiration time.

**11**. The method of claim **1** in which presenting the notification includes incorporating other notifications related to other media objects at the same time.

**12**. The method of claim **1** in which the receiving of the media object at the mobile device occurs automatically without an action by the user.

**13**. The method of claim **1** also including enabling the user to select from a displayed list of available media objects a media object to be played.

**14**. The method of claim **1** in which presenting the notification includes presenting advertising to the user.

**15**. The method of claim **1** in which the notification is generated at the mobile device.

**16**. The method of claim **1** in which the notification is generated at the server.

**17**. The method of claim **1** in which the notification is presented through email.

**18**. The method of claim **1** in which the notification is presented through a text message.

**19**. The method of claim **1** in which the notification is embedded in another object being presented.

**20**. The method of claim **1** in which the notification is presented more than one time.

**21**. The method of claim **1** in which the notification is presented in combination with other notifications related to other media objects.

**22**. The method of claim **1** in which the notification is presented immediately after the media object has been received and stored.

**23**. The method of claim **1** in which presentation of the notification is delayed until several notifications are ready for presentation.

**24**. the method of claim **1** in which the media object has an expiration time and the time when the notification is presented is based on the expiration time.

**25**. The method of claim **24** in which the notification is presented when the expiration time is approaching or imminent.

**26**. The method of claim **1** in which the notification alerts the user about circumstances under which the media object can be presented.

**27**. The method of claim **1** in which the presentation of the notification causes a previously presented notification to disappear.

**28**. The method of claim **1** in which the notification presents information about the media object including at least one of the following: name, title, duration, source, time of availability, cost, advertising, and thumbnail image.

**29**. The method of claim **1** in which the notification presents devices that enable the user to take an action with respect to the notification.

**30**. The method of claim **1** in which the notification contains information about a time when the media object is allowed to be played.

**31**. The method of claim **1** in which the notification is presented with respect to a media object that is episodic.

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